## **RAW SEQUENCE LISTING**

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number:

Source:

Date Processed by STIC:





DATE: 10/03/2006

IFWP

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PATENT APPLICATION: US/10/593,790
                                                             TIME: 08:44:17
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                     Output Set: N:\CRF4\10032006\J593790.raw
      3 <110> APPLICANT: New England Biolabs, Inc.
             Morgan, Richard
              Wilson, Geoffrey
      5
             Lunnen, Keith
      6
      7
             Heiter, Daniel
      8
             Benner, Jack
      9
             Nfenfou, Celine
             Picone, Stephen
     12 <120> TITLE OF INVENTION: A Novel Modular Type II Restriction Endonuclease, CspCI, and
the
     13
             Use of Modular Endonucleases for Generating Endonucleases with
                                                                          (pg.(e)
     14
             New Specificities
     16 <130> FILE REFERENCE: NEB-241-PUS
C--> 18 <140> CURRENT APPLICATION NUMBER: US/10/593,790
C--> 18 <141> CURRENT FILING DATE: 2006-09-25
     18 <150> PRIOR APPLICATION NUMBER: 60/555,796
     19 <151> PRIOR FILING DATE: 2004-03-24
     21 <150> PRIOR APPLICATION NUMBER: PCT/US05/09824
     22 <151> PRIOR FILING DATE: 2005-03-23
     24 <160> NUMBER OF SEQ ID NOS: 49
     26 <170> SOFTWARE: PatentIn version 3.2
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     40 <223> OTHER INFORMATION: n=a,c, g or t
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RAW SEQUENCE LISTING

60 <223> OTHER INFORMATION: n=a,c, g or t

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Output Set: N:\CRF4\10032006\J593790.raw

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|    |     | 5 g  | 61         |
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|    | 110 | 0 <212> TYPE: DNA  |            |
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|    |     | 3 <220> FEATURE:   |            |
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|    |     | 1 ttttgctcat ccccttttaa ttcaacgatc atctgctgaa aagtcagacc ctcacgatag  | 180        |
|    |     | 3 teagaggeea gettetgtte eteagatgee ageeetttea gateggtett accegtetet  | 240        |
|    |     | 5 agttgttggg ttgccccatc aagagtgcgg cgtttttctg ccaattgagt agcttttaca  | 300<br>360 |
|    |     | 7 cccgtcagat cgatatatet ggcatcaate gccgaagtaa aatttcggac aaaatcatta<br>9 aatgcateca gcccaaataa cgttgagata agttcagtet gtettgeegg ggccagegec | 420        |
|    |     | 1 getattettg agaagttgte aatteggttt tttteaacaa ageaaaageg gtgetgtget  | 480        |
|    |     | 3 togttatget caattgetaa ateetgteet tgeteteeta egecagtaat tacaggtgea  | 540        |
|    |     | 5 gaaaactgat cgacatgtgc atttctaaaa tagtcggttt gattacgaaa acgcttacta  | 600        |
|    |     | 7 tcagcctcag ctacgctacc cagtaatgta tattcaagcg cttcgcagaa actggacttc  | 660        |
|    |     | 9 ccggtaccat tggggccata aatcagcacc agacgcgaat ccaggtcaaa ttcctcctgt  | 720        |
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Output Set: N:\CRF4\10032006\J593790.raw

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Input Set : A:\NEB-241-PUS.ST25.txt Output Set: N:\CRF4\10032006\J593790.raw

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241 gtccctactt ttgtggccgc gatgtgatgg tgctgacccc caagaagcac atgacagacc
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                                                                         3840
                                                                         3900
245 gccaagctaa teggacgeta aaggacttga atetgeetge gccccaaaaa actecaaget
247 qqqtgcatac agcgaaccc qatgcctacc aaggtgtcag gtcccccgca agtgttcatc
                                                                         3960
249 cagtcggcac gctggctgtg agcaactgga aggctttcat tcttcaagac ttgtttacca
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251 tecqtaaagg acagegacte accaaggeea acatgttgee eggtaeggtg cectacateg
                                                                         4080
253 gegeategga caettecaae ggegttaetg egeacategg geaaaaaeca atecaegagg
                                                                         4140
255 geggeaceat cagegteaca tatgaeggtt caatagetga agegttttae cageceteee
                                                                         4200
257 cattttgggc atcggatgct gtgaacgtgc tctatcccaa gggtttcaca ctcacaccgg
                                                                         4260
259 ccactgcctt gtttatctgc gcaatcatca ggatggagaa atatcgcttc aactatggcc
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261 gaaaatggca cttagagcgt atgcgagaga cagttatcag gttaccagct actgcaacag
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263 gtgcaccaga ttgggacttt atggagaaat acatcaaaac tttgccctat agctcgcagt
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265 tgcaataatc atggctgatt tcctaaattt cctgccgcat ctacgggtat tgcatgttca
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267 ggacggtggt gatcatcgct aggtggaggc ggaaagccgt gttttgctga ccgcttgccc
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269 ggcctgcggt gaaaagcctt cccattcagg gaaggcttta atcgagttat agatct
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273 <211> LENGTH: 1899
274 <212> TYPE: DNA
275 <213> ORGANISM: unknown
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278 <223> OTHER INFORMATION: restriction and modification system of Citrobacter species
280 <400> SEQUENCE: 6
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2144

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283 tacgaaccgg acaacggcat ttctgtagag gagcaaaagt ccgagattgt caagattaag
285 ggtttgcttt caaaagcaag taagaacgcc aagggcaata ttggttatcc cgagttcatc
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287 atctctaacc ggaaagatac tgcattcctg atagttgtgg agtgcaagcc ggatgtgaaa
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                                                                         300
289 aagcacgaga gcccaagccg tgataagccg gtagactatg cggtggatgg cgttctccac
291 tacgccagac acctagccaa gcactatacc gtattggcgg tggctgtgag cggcacgacg
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293 gcaagtteta tgaaggtgte caactteett gtgeetgegg gtaecaegga tgtgaaggeg
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                                                                         480
295 ctggtcaacg agagtaattc ctcagttgcc gaattggtgc cttatgatga ctactaccgc
297 ctggcgtctt atgatccgga tgttgctcag aagcgccact ctgacttgct ggcgttctca
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299 cgcgagctgc acgagtttat ttggacqaag gcaaaaatct ccgaagaaga aaagcctctg
301 ctggtgagtg ggaccttgat tgcgttgatg aacaacacat tcatcaagac ctttgacgct
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303 ctacctgcag aagatgtgca ggaagcgtgg ctgacggcta tcaagaagga gctggacaaa
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307 aatcccaatc ttggcaagcc tgacagcaag acggctaaag agtatccaga tggagttttc
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309 aaggaaataa tcacccgcat cgccgacaac gtctggccct acatcaatgt ctttcacgac
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311 tttgatgtgg tcggacaatt ctacggtgag tttctgaaat atactgcggg cgacaaaaaa
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313 gegetgggea tegtgetgae geegegeeat gtggetgaae tgtteteget categeeaae
315 gttaacccca agtctaaggt gctggacatc tgtgcgggca cgggcggctt tctcatctcg
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317 gccatgcaac acatgctcaa gaaggccgta acggacaaag agcgcaacga catcaagcaa
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319 aatcggctca tcgggattga aaacaacccc aagatgtttg ccttggctgc cagcaacatg
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321 attetgegtg gtgatggtaa ggetaacetg caccaggeca gttgetttga taatgeagtg
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323 attgcggccg tgcagaagat gaagcccaac gtgggcatgc ttaacccccc gtattcgcag
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325 tecaagageg acgeggaact geatgagetg tatttegtea ageaaatget egacaegett
327 acaccaggtg gagttggtat cgcgattgtt cccatqtcaa qcgccatctc gcccaaccca
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329 atgcgtgaag agctgatgaa gtaccactca ctqqatqcqq tcatgtcaat gccccaggag
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331 ctgttttatc cagtgggcac ggtcacctgt gtcatggtct ggattgccgg tgtgccacat
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333 gagcaaatgt ccaagaagac atggtttggc tactggcgcg acgatggctt tgtgaaaacc
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PATENT APPLICATION: US/10/593,790 TIME: 08:44:17

Input Set : A:\NEB-241-PUS.ST25.txt
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                                                                              1740
     339 gatgatgaat ggtgcgctga agcctatatg gaaacggact actcagtgct gactcagtcc
                                                                              1800
     341 gactttgaga aggtcgttca aagctacgcg ctatttaaac tatttggtca aggcagtagc
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     348 <212> TYPE: DNA
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     351 <220> FEATURE:
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     359 ggagtcaccg cacgcgtggc tccccctcca aacttgaaac cggcagccgc aggcaccatc
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     361 agcgtagcgc tgggagggca aggtggcgca ggagtcgcct tcctccaacc gcgtccctac
                                                                               240
                                                                               300
     363 ttttgtggcc gcgatgtgat ggtgctgacc cccaagaagc acatgacaga ccaagaaaag
     365 ctgtggtggg tcatgtgcat cacagccaac cgtttccgct ttggatttgg tcgccaagct
                                                                               360
     367 aateggaege taaaggaett gaatetgeet gegeeceaaa aaaeteeaag etgggtgeat
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     369 acagegaace eegatgeeta eeaaggtgte aggteeeeeg caagtgttea teeagtegge
     371 acgctggctg tgagcaactg gaaggctttc attcttcaag acttgtttac catccgtaaa
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     373 ggacagegae teaceaagge caacatgttg eeeggtaegg tgeeetacat eggegeateg
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     375 gacactteca acggcgttac tgcgcacatc gggcaaaaaac caatccacga gggcggcacc
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     377 atcagcgtca catatgacgg ttcaatagct gaagcgtttt accagccctc cccattttgg
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     379 gcatcggatg ctgtgaacgt gctctatccc aagggtttca cactcacacc ggccactgcc
     381 ttqtttatct qcgcaatcat caqqatqqaq aaatatcqct tcaactatgg ccgaaaatgg
                                                                               840
     383 cacttagage gtatgegaga gacagttate aggttaceag etactgeaac aggtgeacea
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     389 <211> LENGTH: 632
     390 <212> TYPE: PRT
     391 <213> ORGANISM: unknown
     393 <220> FEATURE:
     394 <223> OTHER INFORMATION: predicted amino acid sequence of restriction modification
system
               of Citrobacter species 2144
     395
     397 <400> SEQUENCE: 8
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     400 1
     403 Thr Phe Gly Tyr Tyr Glu Pro Asp Asn Gly Ile Ser Val Glu Glu Gln
     407 Lys Ser Glu Ile Val Lys Ile Lys Gly Leu Leu Ser Lys Ala Ser Lys
     408
     411 Asn Ala Lys Gly Asn Ile Gly Tyr Pro Glu Phe Ile Ile Ser Asn Arg
     412
     415 Lys Asp Thr Ala Phe Leu Ile Val Val Glu Cys Lys Pro Asp Val Lys
                             70
     419 Lys His Glu Ser Pro Ser Arg Asp Lys Pro Val Asp Tyr Ala Val Asp
                         85
                                             90
     423 Gly Val Leu His Tyr Ala Arg His Leu Ala Lys His Tyr Thr Val Leu
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RAW SEQUENCE LISTING ERROR SUMMARY DATE: 10/03/2006 PATENT APPLICATION: US/10/593,790 TIME: 08:44:18

Input Set : A:\NEB-241-PU\$.ST25.txt
Output Set: N:\CRF4\10032006\J593790.raw

## Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

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Seq#:2; N Pos. 14
Seq#:3; N Pos. 12
Seq#:4; N Pos. 14
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Seq#:14; N Pos. 4,5,6/1,8
Seq#:23; N Pos. 7 /
Seg#:29; N Pos. 5,6,7,8,9
Seq#:30; N Pos. 1,2,3,4,5,6,7,8,9,19,11,15,16,17,18,19,24,25,26,27,28,29,30
Seq#:30; N Pos. 31,32,33,34,35,36
Seq#:31; N Pos. 1,2,3,4,5,6,7,8,9,10,14,15,16,17,18,23,24,25,26,27,28,29,30
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Seq#:32; N Pos. 1,2,3,4,5,6,7,8,9,10,14,15,16,17,18,23,24,25,26,27,28,29,30
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Seq#:34; N Pos. 4,5,6,7,8,9
Seq#:35; N Pos. 4,5,6,7
Seq#:36; N Pos. 4,5,6,7,8
Seq#:37; N Pos. 5,6,7,8,9
Seg#:38; N Pos. 4,5,6,7,8
Seq#:39; N Pos. 4,5,6,7,8
Seq#:40; N Pos. 4,5,6,7,8
Seg#:41; N Pos. 4,5,6,7,8
Seq#:42; N Pos. 4,5,6,7,8
Seq#:43; N Pos. 4,5,6,7,8,9
Seq#:44; N Pos. 3,4,5,6
Seq#:45; N Pos. 4,5,6,7,8
Seq#:46; N Pos. 4,5,6,7,8,9
Seq#:47; N Pos. 5,6,7,8,9,10
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Seq#:49; N Pos. 3,4,5,6,7
```

## VERIFICATION SUMMARY DATE: 10/03/2006 PATENT APPLICATION: US/10/593.790 TIME: 08:44:18

Input Set : A:\NEB-241-PUS.ST25.txt
Output Set: N:\CRF4\10032006\J593790.raw

L:18 M:270 C: Current Application Number differs, Replaced Current Application No L:18 M:271 C: Current Filing Date differs, Replaced Current Filing Date L:43 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:0 L:63 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0 L:83 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:0 L:103 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:0 L:706 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13 after pos.:0 L:724 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14 after pos.:0 L:838 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:23 after pos.:0 L:931 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29 after pos.:0 L:959 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30 after pos.:0 L:987 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:31 after pos.:0 L:1015 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:32 after pos.:0 L:1043 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:33 after pos.:0 L:1061 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:34 after pos.:0 L:1079 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35 after pos.:0 L:1097 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36 after pos.:0 L:1115 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:0 L:1143 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:0 L:1161 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:39 after pos.:0 L:1179 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:40 after pos.:0 L:1197 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:41 after pos.:0 L:1215 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:42 after pos.:0 L:1230 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:43 after pos.:0 L:1250 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:44 after pos.:0 L:1265 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:45 after pos.:0 L:1280 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:46 after pos.:0 L:1295 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:47 after pos.:0 L:1320 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:48 after pos.:0 L:1335 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:49 after pos.:0